

**CAVE BUTTES DAM OUTLET  
FCD GAGE ID# 4903**

**STATION DESCRIPTION**

**LOCATION** – The dam is located near what would be the intersection of Happy Valley Road and 16th Street. The gage is located on the east side of the main dam structure across Cave Creek Wash. Latitude 33° 43' 15", Longitude 112° 02' 43". Located in the NW1/4 SW1/4 SW1/4 S03 T4N R3E in the Union Hills 7.5-minute quadrangle.

**ESTABLISHMENT** – January 25, 1984

**DRAINAGE AREA** – 191 square miles

**GAGE** – The gage is a non-submersible pressure transducer connected to a bubbler orifice in the outlet channel near the footbridge. The bubbler orifice is at 1.33 feet gage height, or 1,557.49 feet M.S.L, levels of January 19, 1992.

There is one staff gage located on the right bank of the outlet channel near the footbridge and the orifice. It measures in gage height. However, the elevation marks are read from the bottom of the number. In other words, the top of the two foot marker is 3 feet gage height.

There is one crest gage at this location. It is located on the left bank and upstream side of the footbridge. The crest gage is mounted at an angle. To determine gage height, measure the cork line on the gage in feet. Use the graph in the folder and measure along the diagonal. Mark the point and find the gage height on the left axis. Pin elevation is at 1.60 feet gage height, levels of June 29, 2000.

**ZERO GAGE HEIGHT** - is the zero on the staff gage at the footbridge. Elevation 1,556.16 feet M.S.L.

**HISTORY** – No previous history at this location. Gage was established on January 25, 1984. Original gage was a pressure transducer. A new bubbler orifice and non-submersible pressure transducer were installed on April 1, 1998. A crest gage was installed on June 14, 2000 near the footbridge.

**REFERENCE MARKS** –

RP3 is a white paint spot at left bank on the upstream side of the footbridge. Elevation 9.29 feet gage height (1,565.45 feet M.S.L.) levels of January 19, 1992.

RP4 is a white paint spot on top of left bank outlet wall at the fourth post from downstream end. Elevation = 9.42 feet gage height (1,565.58 feet M.S.L.) levels of January 19, 1992.

**CHANNEL AND CONTROL** – The channel is a rough concrete lined trapezoidal shaped channel exiting from Cave Buttes Dam. The channel is the control for all levels.

**RATING** – The current rating is rating #3, which is a modification of rating #2. Rating #2 was developed using surveyed cross sections in an HEC-2 model. Rating #3 is a modification of rating #2 using seven direct discharge measurements. Rating #1 was taken from the original design computations for the dam and outlet.

**DISCHARGE MEASUREMENTS** – Direct measurements can be made at two locations. Wading measurements could be made approximately 2,000 feet below the gage. Higher discharge measurements can be made by bridge crane from the footbridge. The trapezoidal sides do not allow for accurate discharge measurements near the sides.

**FLOODS** – The discharge from the dam is limited to approximately 550 cfs. Several flows have approached that value.

**POINT OF ZERO FLOW** – The PZF is approximately 0.00 feet gage height near the gage.

**REGULATION** – Cave Buttes Dam regulates flow into the outlet channel and limits the flow to approximately 550 cfs.

**DIVERSIONS** - None

**ACCURACY** – Good

**JUSTIFICATION** – Monitor Cave Buttes Dam for Operations and Maintenance and for public safety.

**UPDATE** –        July 28, 2011  
                             D E Gardner